City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Chen Residence Steep Slope Buffer Critical Area Modification
Proposal Address:	9676 Hilltop Rd
Proposal Description:	Critical Areas Land Use Permit for the modification of a steep slope critical area buffer to construct a new single-family residence. The proposal is supported by a Critical Areas Report and includes native vegetation planting as mitigation.
File Number:	19-109537-LO
Applicant:	Denise Steffes, McCullough Architects
Decisions Included	Critical Areas Land Use Permit (Process II. 20.30P)
Planner:	Heidi M. Bedwell, Environmental Planning Manager
State Environmental Policy Act Threshold Determination:	**Exempt Per WAC 197-11-800(1)**
Director's Decision:	**Approval with Conditions** Michael A. Brennan, Director Development Services Department

By: Heidi M. Bedwell for
Elizabeth Stead, Land Use Director

Application Date:	April 1, 2019
Notice of Application Date:	May 2, 2019
Decision Publication Date:	August 15, 2019
Project Appeal Deadline:	August 29, 2019

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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Attachments

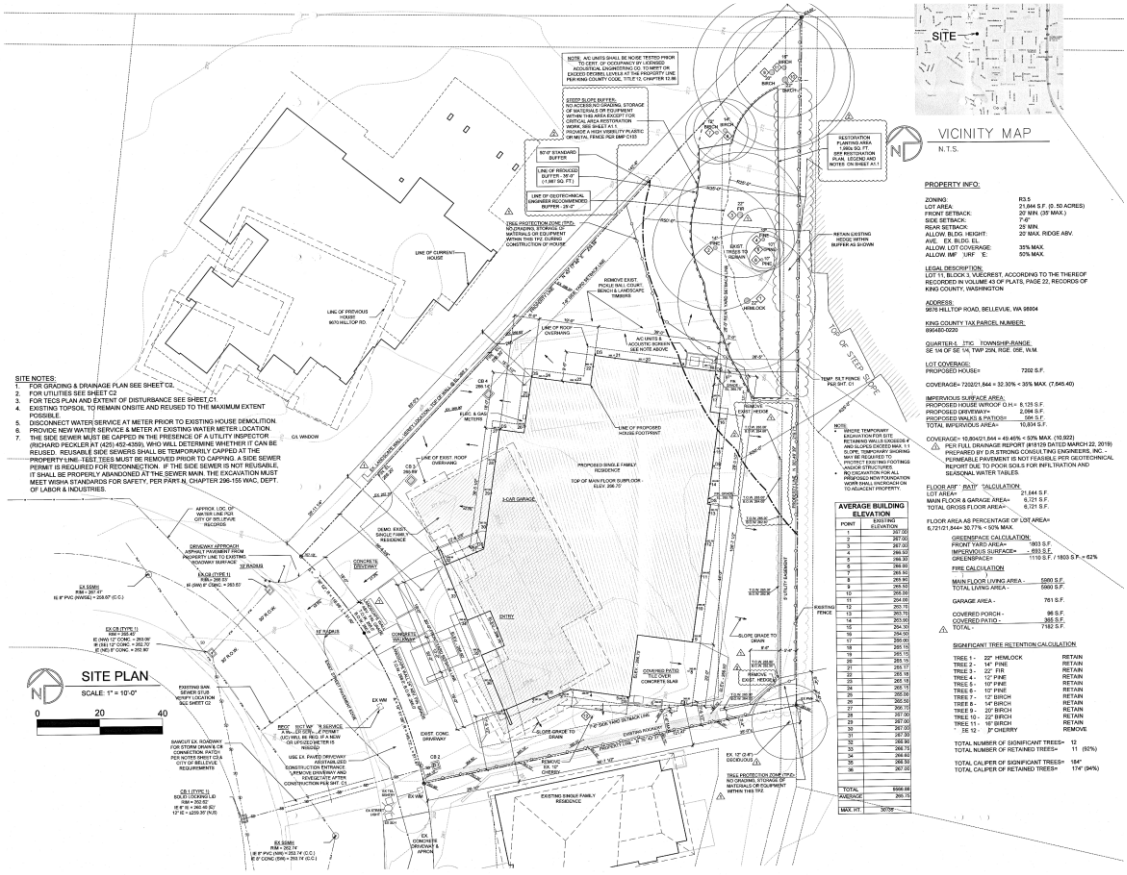
1. Proposed Plan
2. Mitigation Plan
3. Geotechnical Report

I. Proposal Description

The applicant proposes to demolish an existing single-family home and construct a new single-family home within a top of steep slope critical area buffer. The proposal includes a Critical Area Report with a request to modify a steep slope critical area buffer from 50 feet to approximately 35 feet. The modified area is mostly maintained lawn. No significant trees are proposed to be removed within the existing steep slope and buffer. As part of the mitigation plan, the applicant is propsing to plant 2,000 square feet of the steep slope buffer with native vegetation (Attachment 2).

Per LUC 20.25H.255 a Critical Areas Land Use Permit (CALUP) with a Critical Areas Report is required to modify steep slope critical area buffers. The Critical Areas Report is intended to provide flexibility to sites with degraded critical functions and values. The Critical Areas Report shall demonstrate the proposed with the requested modification leads to equivalent or better functions and values than what would result from standard application of the Critical Areas Overlay requirements of the Land Use Code.

Figure 1 (Site Plan)



II. Site Description, Zoning, Land Use, and Critical Areas

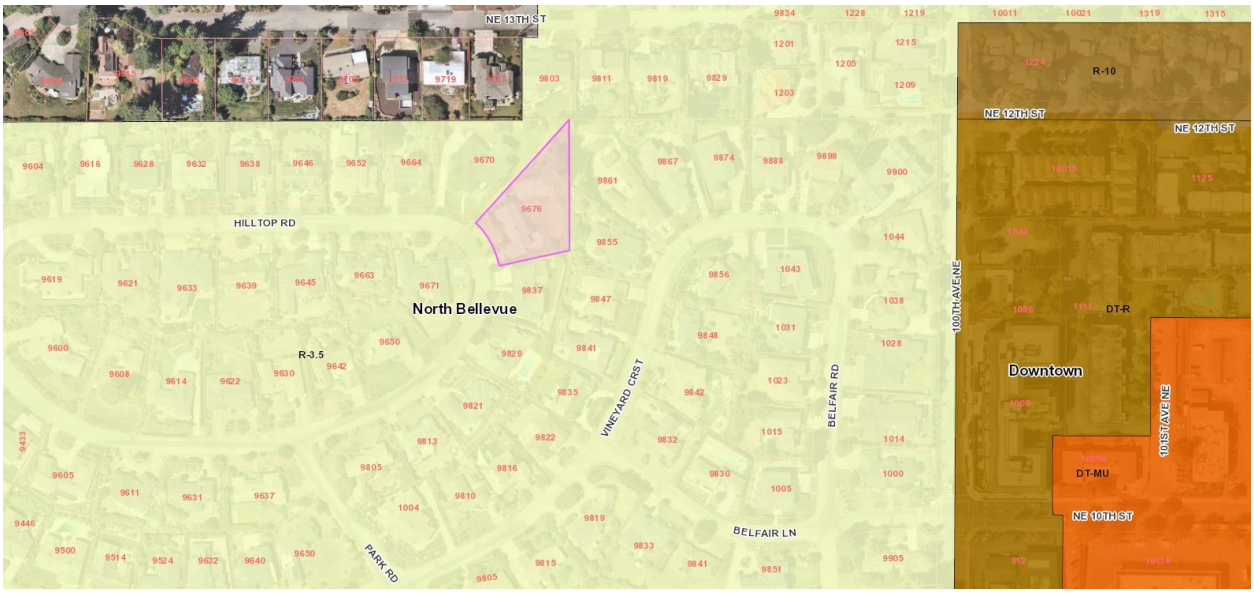
A. Site Description

The project site is located in a community of single-family homes in the North Bellevue Subarea of the City of Bellevue. The existing site is 21,844 Sq. Ft. or 0.50 acres in area and is currently occupied by a single-family residence, sports court and associated improvements. The existing site topography is generally flat in nature with a topographic change of approximately 5 feet up from southwest to northeast. The shape of the site is 'pie' shaped with the widest portion at the south and a long narrow point to the north. The lot to the east (9861 Vineyard Crest) is currently occupied similarly by a single family residence, swimming pool and associated improvements. The topography of the site includes a steep slope on the west side of the property. (see figure 2 below).

Figure 2 (Aerial Photograph)

B. Zoning

The property and surrounding properties are zoned R-3.5, single-family residential. The proposed work is allowed in this zone.



C. Land Use Context

The property has a Comprehensive Plan Land Use Designation of SF-Medium (Single-Family Medium Density), and the subject site and surrounding properties are developed with single-family homes.

D. Critical Areas On-Site and Regulations

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The R-3.5 zoning dimensional requirements found in LUC 20.20.010 apply to the proposed home construction. Based on the preliminary plans and information submitted with this

application the plans submitted generally demonstrate conformance with these and other zoning dimensional standards. However, conformance will be verified during building permit review. **See Conditions of Approval in Section X of this report.**

B. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer, or structure setback from a critical area or buffer.

i. Consistency with LUC 20.25H.125

In addition to generally applicable performance standards set forth in LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

A. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

D. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;

E. Development shall be designed to minimize impervious surfaces within the critical area and critical areabuffer;

F. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

G. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;

H. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not

technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;

I. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

J. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. (Ord. 5680, 6-26-06, § 3)

Finding: The proposal is designed to minimize alterations to the steep slope critical areas and buffers. No retaining walls outside the proposed single-family building footprint are proposed as part of the project. As stated in the Earth Soulutions NW Report. dated March 6, 2019: "The proposed buffer reduction and residential construction will not increase the threat of geological hazard to adjacent properties beyond the level of which currently exist" The proposal complies with the recommendations of the geotechnical engineer based on the site slope stability conditions. Modified or disturbed areas will be restored and enhanced by a mitigation plan which includes the planting of native vegetation on the steep slope buffer. **See Conditions of Approval in Section X of this report.**

ii. Consistency with Critical Areas Report 20.25H.140 and .145 Critical areas report – Approval of modification.

The application includes a copy of the site plans for the proposal and a topographic survey. A geotechnical report was prepared by Earth Solutions NW dated March 6, 2019. The report includes an analysis of the site's geological characteristics and the proposed project.

The proposal will permanently disturb slope buffer that is in a degraded condition due to existing lawn and impervious surface. No significant trees within the existing critical area steep slope and buffer will be removed by the proposal. These impacts are not environmentally significant and will be mitigated by the replanting of the remaining buffer with native vegetation. **See Conditions of Approval in Section X of this report.**

IV. Public Notice and Comment

Application Date:	April 1, 2019
Public Notice (500 feet):	May 2, 2019
Minimum Comment Period:	May 19, 2019

The Notice of Application for this project was published the City of Bellevue Weekly Permit Bulletin on May 2, 2019. It was mailed to property owners within 500 feet of the project site. No comments were received from the public as of the writing of this staff report.

V. Summary of Technical Reviews

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development and has approved the application. The applicant will be required to apply for a single-family building permit which will need to include a letter from the geotechnical engineer stating they have reviewed the proposed permit. The permit must comply with Clearing and Grading best management practices and standards and codes. Geotechnical inspections will be required during clearing and grading and construction activities. **See Conditions of Approval in Section X of this report.**

The clearing and grading reviewer has reviewed the plans and materials submitted for this project and has approved the clearing and grading portion of this land use application. The future clearing and grading permit application for this development must comply with conditions of approval for this permit and City of Bellevue Clearing and Grading Code (BCC 23.76).

B. Utilities

The Utilities Department has reviewed and approved the proposed site development for conceptual design. The applicant will be required to apply for a single-family building permit must comply with the Utility Surface Water Engineering Standards and codes. **See Conditions of Approval in Section X of this report.**

VI. State Environmental Policy Act (SEPA)

The proposal is exempt from SEPA review, per WAC 197-11-800 and BCC 22.02.032. Construction of a single family residence is a categorical exemption and no construction is proposed within critical areas.

VII. Changes to Proposal Due to Staff Review

Staff required the proposed mitigation plan to replant the buffer with native vegetation. **See Conditions of Approval in Section X of this report.**

VIII. Decision Criteria

A. 20.25H.255.B. Decision Criteria – Proposals to Reduce Regulated Critical Area Buffer.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;

Finding: The project proposes to reduce a steep slope buffer from 50 feet to approximately 35 feet to construct a single-family residence. The development activity will take place in an area where vegetation consists of mowed lawn and ornamental landscaping. The steep slope has moderate habitat function due to past modification. As a result of the proposed mitigation plan, the property will gain an increase in structural and biological diversity by installing additional native plants. These actions will increase the remaining habitat value and water quality functions. The project will result in an increase in ecological value to the property over what is existing. **See Conditions of Approval in Section X of this report.**

2. **The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;**

   Finding: Functions in an urban ecosystem are commonly degraded due to vegetation removal and habitat fragmentation. With the proposed planting plan the water quality and habitat functions on this site will be improved. The proposal includes plans to restore approximately 2,000 square feet of the critical area steep slope. **See Conditions of Approval in Section X of this report.**

3. **The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;**

   Finding: Native vegeation and higher structural diversity all contribute to improving stormwater quality function in critical areas. Due the degraded condition of the critical area buffer and the proposed planting of native vegetation , the proposal will achieve a net gain in stormwater quality function. The project will be subject to the City's existing stormwater regulations.

4. **Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;**

   Finding: Per LUC 20.40.490 a maintenance assurance device is required to ensure completion of the five-year monitoring period of the mitigation plan submitted in the critical areas report. **See Conditions of Approval in Section X of this report.**

5. **The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and**

   Finding: As detailed in the geotechnical with the implementation of the mitigation plan, there will be no overall detrimental effect to the functions and values of the critical area or buffer. . An increase in value of the water quality, habitat, and functions of the steep slope and remaining buffer are an expected outcome of the proposed planting.

6. **The resulting development is compatible with other uses and development in the same land use district.**

   Finding: The proposal is requested in order to construct a single-family residence which is compatible with the adjacent single-family residences.

B. 20.30P.140 Critical Areas Land Use Permit Decision Criteria – Decision Criteria
The Director may approve, or approve with modifications an application for a Critical Areas Land Use Permit if:

1. **The proposal obtains all other permits required by the Land Use Code;**

   Finding: A single-family building permit must be applied for and approved to construct the proposed new single-family residence. **See Conditions of Approval in Section X of this report.**

2. **The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;**

   Finding: The proposal is consistent with the required performance standards as discussed in Section III of this report. The proposed development activity has been limited to areas which are within a degraded steep slope buffer. The proposed mitigation will replant the steep slope buffer with native vegetation. No significant trees within the steep slope or buffer will be removed.

   The review of this permit is reliant upon the findings of qualified professionals submitted by the applicant as part of this proposal. The property owner will be required to execute a Hold Harmless Agreement releasing the City from liability for any improvements within the critical area or critical area buffer. **See Conditions of Approval in Section X of this report.**

3. **The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and;**

   Finding: As discussed in Section III of this report, the applicable performance standards are being met.

4. **The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;**

   Finding: The proposed development is adequately served by existing public facilities.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: A mitigation plan consistent with LUC 20.25H.210 has been prepared as part of this application (Attachment 2). The project is required to be monitored for five years. The monitoring, maintenance, and reporting schedule will be as proposed in the mitigation plan. **See Conditions of Approval in Section X of this report.**

6. The proposal complies with other applicable requirements of this code.

Finding: The applicant submitted documentation consistent with the requirement to demonstrate compliance with the requirements of LUC 20.30P, and 20.25H. Staff has reviewed these documents and finds that the proposal complies with all other applicable requirements of the Land Use Code. **See Conditions of Approval in Section X of this report.**

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby approve with conditions the modification to reduce a steep slope buffer from 50 feet to approximately 35 feet to construct a new single-family residence replant the slope and remaining buffer with native vegetation.

Approval of this Critical Areas Land Use Permit does not constitute a permit for construction. A building permit, clear and grade permit, and/or utility permit is required, and all plans are subject to review for compliance with applicable City of Bellevue codes and standards.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Building Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code- 23.76 BCC	Savina Uzunow, 425-452-7860
Land Use Code- Title 20 BCC	Heidi Bedwell, 425-245-4862
Utilites Code-BCC Title 24 BCC	Jason Felgar, 425-452-7851

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. **Building Permit Required:** Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. Building Permit approval is required. Plans submitted as part of the permit application shall be consistent with the plans reviewed as part of this approval.

   Authority: Land Use Code 20.30P.140
   Reviewer: Heidi Bedwell, Development Services Department

2. **Hold Harmless Agreement:** Prior to building permit approval, the applicant or property owner shall submit a hold harmless agreement releasing the City of Bellevue from any and all liability associated with the steep slope buffer modification. The agreement must meet city requirements and must be reviewed by the City Attorney's Office for formal approval.

   Authority: Land Use Code 20.30P.170
   Reviewer: Heidi Bedwell, Development Services Department

3. **Mitigation Plan:** Consistent with the plan he applicant must include the mitigation planting plan (Attachment 2) as part of the building permit.

   Authority: Land Use Code 20.25H.255
   Reviewer: Heidi Bedwell, Development Services Department

4. **Maintenance and Monitoring Surety:** A financial surety is required to be submitted to ensure the mitigation planting successfully establishes. A maintenance assurance device that is equal to 50% of the cost of plants, installation, and the cost of monitoring is required to be held for a period of five years from the date of successful installation. A cost estimate is required to be provided with the building permit. The financial surety is required to be posted prior to building permit issuance. Release of the surety after the 5-year monitoring period is contingent upon a final inspection of the planting by Land Use Staff that finds the maintenance and monitoring plan was successful and meets performance standards.

   Authority: Land Use Code 20.25H.220
   Reviewer: Heidi Bedwell, Development Services Department

5. **Maintenance and Monitoring Reports:** The mitigation planting is required to be maintained and monitored for five years to ensure the plants successfully establish. Annual monitoring reports are required to be submitted to document the plants are meeting approved performance standards. Photos from selected photo points shall

be included in the monitoring reports to document the planting. Land Use inspection is required by Land Use staff to end the plant monitoring period.

Reporting shall be submitted no later than the end of each growing season or by December 31st, and shall include a site plan and photos from photo points established at the time of Land Use inspection. Reports shall be submitted to **Drew Folsom** or Heidi Bedwell by the above listed date and can be emailed to dfolsom@bellevuewa.gov or mailed directly to:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: Heidi Bedwell, Development Services Department

6. **Geotechnical Review:** The project geotechnical engineer must review the final construction plans, including all foundation designs. A letter from the geotechnical engineer stating that the plans conform to the recommendations in the geotechnical report and any addendums and supplements must be submitted to the single-family addition building permit prior to issuance of the construction permit.

   Authority: Clearing & Grading Code 23.76.050
   Reviewer: Savina Uzunow, Development Services Department, Clearing & Grading Section

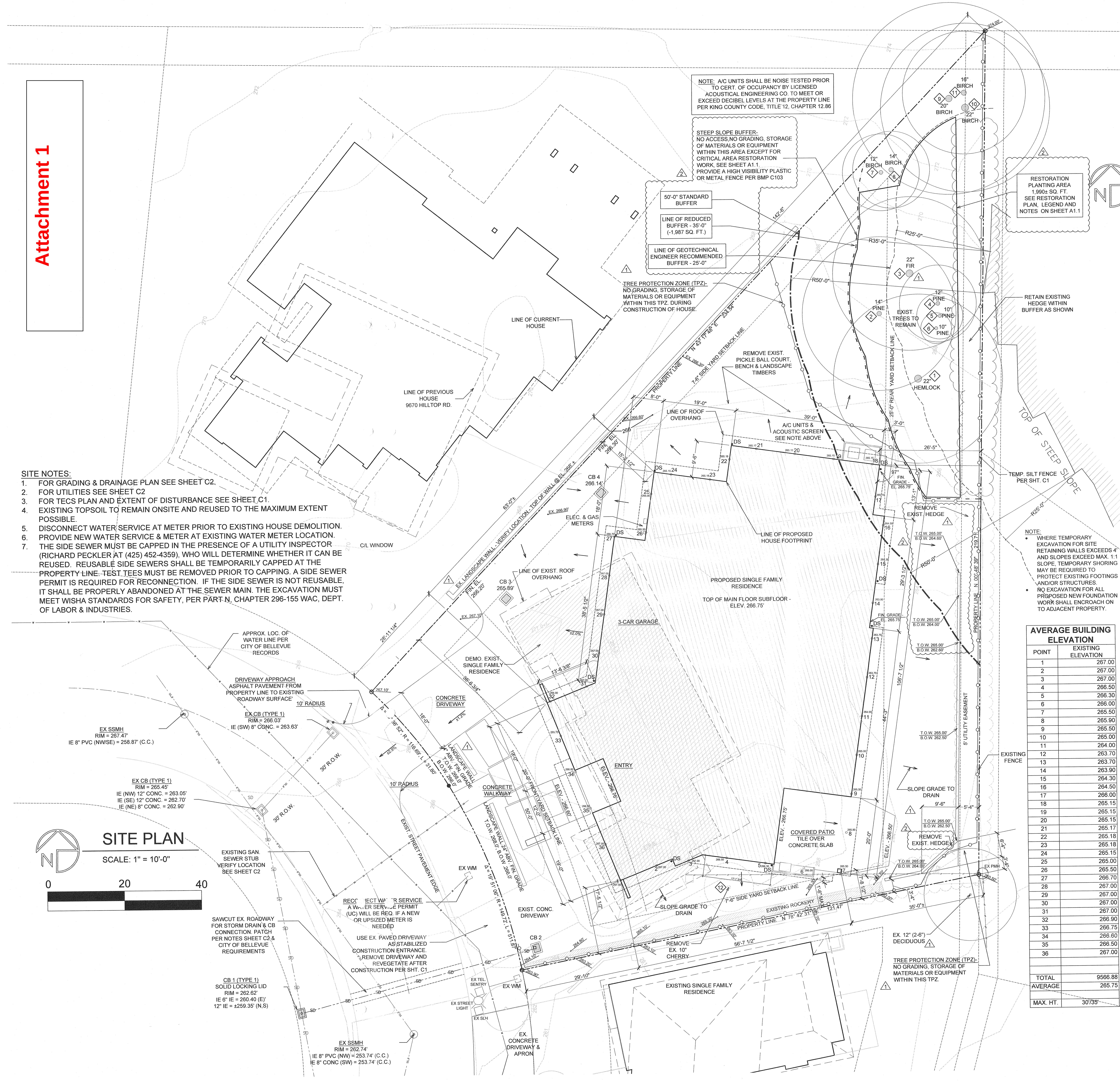
7. **Geotechnical Inspection:** The project geotechnical engineer must provide geotechnical inspection during project construction, including subgrades for foundations and footings, and any unusual seepage, slope, or subgrade conditions.

   Authority: Clearing & Grading Code 23.76.050
   Reviewer: Savina Uzunow, Development Services Department, Clearing & Grading Section

8. **Rainy Season Restrictions:** Due to steep slopes on the site, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without the written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

   Authority: Bellevue City Code 23.76.093.A,
Reviewer: Savina Uzunow, Development Services Department, Clearing & Grading Section

Attachment 1



SITE PLAN

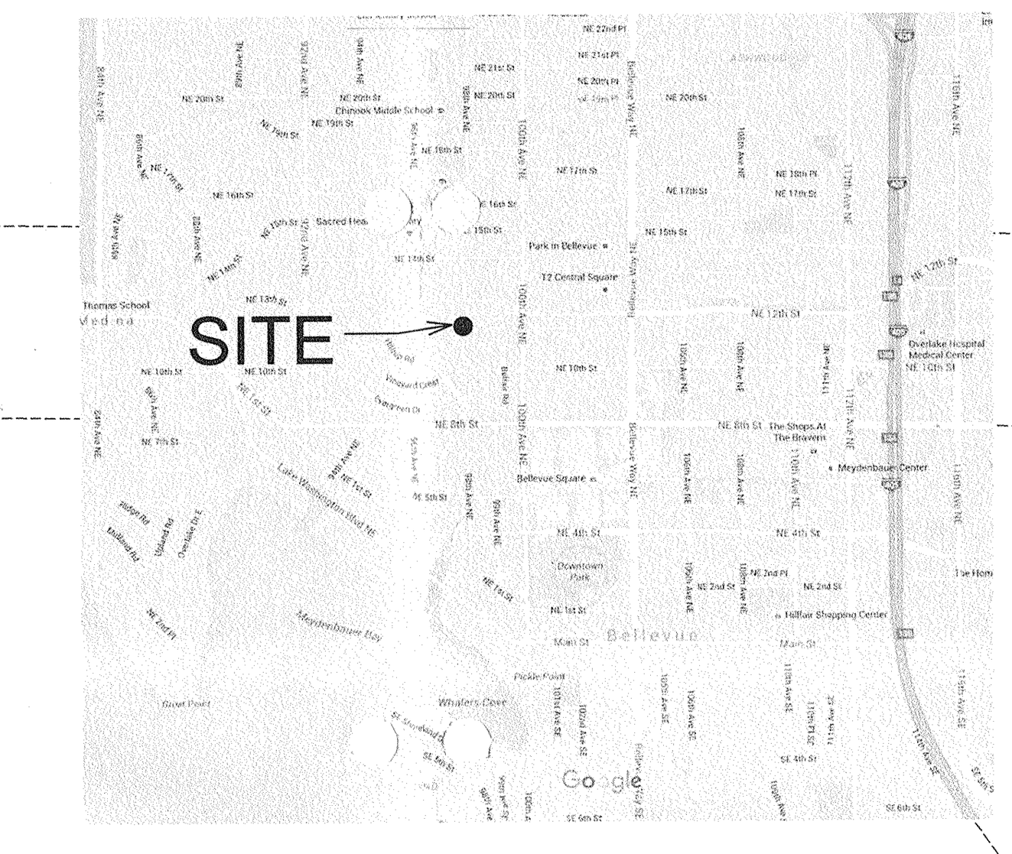
SCALE: 1" = 10'-0"

0 20 40

SITE NOTES:
1. FOR GRADING & DRAINAGE PLAN SEE SHEET C2.
2. FOR UTILITIES SEE SHEET C2
3. FOR TECS PLAN AND EXTENT OF DISTURBANCE SEE SHEET C1.
4. EXISTING TOPSOIL TO REMAIN ONSITE AND REUSED TO THE MAXIMUM EXTENT POSSIBLE.
5. DISCONNECT WATER SERVICE AT METER PRIOR TO EXISTING HOUSE DEMOLITION.
6. PROVIDE NEW WATER SERVICE & METER AT EXISTING WATER METER LOCATION.
7. THE SIDE SEWER MUST BE CAPPED IN THE PRESENCE OF A UTILITY INSPECTOR (RICHARD PECKLER AT (425) 452-4359), WHO WILL DETERMINE WHETHER IT CAN BE REUSED. REUSABLE SIDE SEWERS SHALL BE TEMPORARILY CAPPED AT THE PROPERTY LINE. TEST TEES MUST BE REMOVED PRIOR TO CAPPING. A SIDE SEWER PERMIT IS REQUIRED FOR RECONNECTION. IF THE SIDE SEWER IS NOT REUSABLE, IT SHALL BE PROPERLY ABANDONED AT THE SEWER MAIN. THE EXCAVATION MUST MEET WISHA STANDARDS FOR SAFETY, PER PART N, CHAPTER 296-155 WAC, DEPT. OF LABOR & INDUSTRIES.

AVERAGE BUILDING ELEVATION

POINT	EXISTING ELEVATION
1	267.00
2	267.00
3	267.00
4	266.50
5	266.30
6	266.00
7	265.50
8	265.90
9	265.50
10	265.00
11	264.00
12	263.70
13	263.70
14	263.90
15	264.30
16	264.50
17	266.00
18	265.15
19	265.15
20	265.15
21	265.17
22	265.18
23	265.18
24	265.15
25	265.00
26	265.50
27	266.70
28	267.00
29	267.00
30	267.00
31	267.00
32	266.90
33	266.75
34	266.60
35	266.50
36	267.00
TOTAL	9566.88
AVERAGE	265.75
MAX. HT.	30'/35'



VICINITY MAP

N.T.S.

PROPERTY INFO:

ZONING:	R3.5
LOT AREA:	21,844 S.F. (0..50 ACRES)
FRONT SETBACK:	20' MIN. (35' MAX.)
SIDE SETBACK:	7'-6"
REAR SETBACK:	25' MIN.
ALLOW. BLDG. HEIGHT:	20' MAX. RIDGE ABV.
AVE. EX. BLDG. EL.	
ALLOW. LOT COVERAGE:	35% MAX.
ALLOW. IMP. SURF. E:	50% MAX.

LEGAL DESCRIPTION:
LOT 11, BLOCK 3, VUECREST, ACCORDING TO THE THEREOF RECORDED IN VOLUME 43 OF PLATS, PAGE 22, RECORDS OF KING COUNTY, WASHINGTON

ADDRESS:
9676 HILLTOP ROAD, BELLEVUE, WA 98004

KING COUNTY TAX PARCEL NUMBER:
896480-0220

QUARTER-SECTIC TOWNSHIP-RANGE:
SE 1/4 OF SE 1/4, TWP 25N, RGE. 05E, W.M.

LOT COVERAGE:
PROPOSED HOUSE= 7202 S.F.

COVERAGE= 7202/21,844 = 32.30% < 35% MAX. (7,645.40)

IMPERVIOUS SURFACE AREA:
PROPOSED HOUSE W/ROOF O.H.= 8,126 S.F.
PROPOSED DRIVEWAY= 2,094 S.F.
PROPOSED WALKS & PATIOS= 584 S.F.
TOTAL IMPERVIOUS AREA= 10,804 S.F.

COVERAGE= 10,804/21,844 = 49.46% < 50% MAX. (10,922)
PER FULL DRAINAGE REPORT (#18129 DATED MARCH 22, 2019) PREPARED BY D.R.STRONG CONSULTING ENGINEERS, INC. - PERMEABLE PAVEMENT IS NOT FEASIBLE PER GEOTECHNICAL REPORT DUE TO POOR SOILS FOR INFILTRATION AND SEASONAL WATER TABLES.

FLOOR AREA RATIO CALCULATION:
LOT AREA= 21,844 S.F.
MAIN FLOOR & GARAGE AREA= 6,721 S.F.
TOTAL GROSS FLOOR AREA= 6,721 S.F.

FLOOR AREA AS PERCENTAGE OF LOT AREA=
6,721/21,844= 30.77% < 50% MAX.

GREENSPACE CALCULATION:
FRONT YARD AREA= 1803 S.F.
IMPERVIOUS SURFACE= - 693 S.F.
GREENSPACE= 1110 S.F. / 1803 S.F. = 62%

FIRE CALCULATION
MAIN FLOOR LIVING AREA - 5980 S.F.
TOTAL LIVING AREA - 5980 S.F.

GARAGE AREA - 761 S.F.

COVERED PORCH - 96 S.F.
COVERED PATIO - 365 S.F.
TOTAL - 7182 S.F.

SIGNIFICANT TREE RETENTION CALCULATION

TREE 1 -	22" HEMLOCK	RETAIN
TREE 2 -	14" PINE	RETAIN
TREE 3 -	22" FIR	RETAIN
TREE 4 -	12" PINE	RETAIN
TREE 5 -	10" PINE	RETAIN
TREE 6 -	10" PINE	RETAIN
TREE 7 -	12" BIRCH	RETAIN
TREE 8 -	14" BIRCH	RETAIN
TREE 9 -	20" BIRCH	RETAIN
TREE 10 -	22" BIRCH	RETAIN
TREE 11 -	16" BIRCH	RETAIN
TREE 12 -	10" CHERRY	REMOVE

TOTAL NUMBER OF SIGNIFICANT TREES= 12
TOTAL NUMBER OF RETAINED TREES= 11 (92%)

TOTAL CALIPER OF SIGNIFICANT TREES= 184"
TOTAL CALIPER OF RETAINED TREES= 174" (94%)

McCULLOUGH ARCHITECTS

5700 Corson Ave South
Seattle, WA. 98108
206.443.1181
mccullougharchitects.com

Revisions Comment
1. 11 Apr 2019 Land Use Dept. comments
2. 1 July 2019 Land Use Dept. comments

Date: 25 Mar 2019
Job No: 18-011
Project No: Chen
Drawn: DRS
Approved: APM

Owner
Tony & Diana Chen

7806 REGISTERED ARCHITECT PHILIP McCULLOUGH STATE OF WASHINGTON

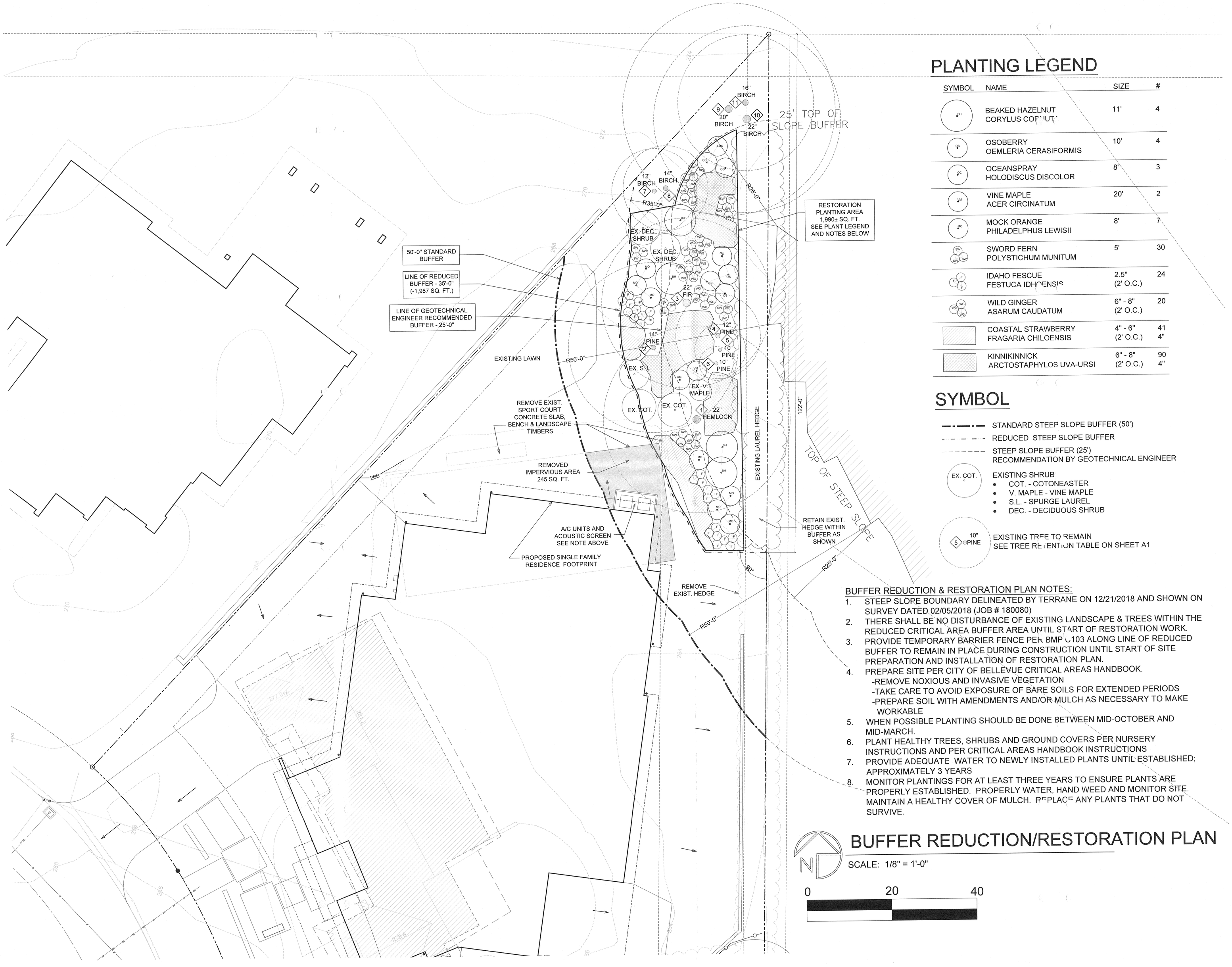
Chen Residence

9676 Hilltop Road
Bellevue, Washington 98004

Permit Submittal

Site Plan

A1.0



PLANTING LEGEND

SYMBOL	NAME	SIZE	#
BH	BEAKED HAZELNUT CORYLUS CORNUTA	11'	4
OS	OSOBERRY OEMLERIA CERASIFORMIS	10'	4
OC	OCEANSPRAY HOLODISCUS DISCOLOR	8'	3
VM	VINE MAPLE ACER CIRCINATUM	20'	2
MO	MOCK ORANGE PHILADELPHUS LEWISII	8'	7
SW	SWORD FERN POLYSTICHUM MUNITUM	5'	30
F	IDAHO FESCUE FESTUCA IDHOENSIS	2.5" (2' O.C.)	24
WG	WILD GINGER ASARUM CAUDATUM	6" - 8" (2' O.C.)	20
	COASTAL STRAWBERRY FRAGARIA CHILOENSIS	4" - 6" (2' O.C.)	41 4"
	KINNIKINNICK ARCTOSTAPHYLOS UVA-URSI	6" - 8" (2' O.C.)	90 4"

SYMBOL

- STANDARD STEEP SLOPE BUFFER (50')
- REDUCED STEEP SLOPE BUFFER
- STEEP SLOPE BUFFER (25')
  RECOMMENDATION BY GEOTECHNICAL ENGINEER

EX. COT.
EXISTING SHRUB
- COT. - COTONEASTER
- V. MAPLE - VINE MAPLE
- S.L. - SPURGE LAUREL
- DEC. - DECIDUOUS SHRUB

5 10" PINE
EXISTING TREE TO REMAIN
SEE TREE RETENTION TABLE ON SHEET A1

BUFFER REDUCTION & RESTORATION PLAN NOTES:

1. STEEP SLOPE BOUNDARY DELINEATED BY TERRANE ON 12/21/2018 AND SHOWN ON SURVEY DATED 02/05/2018 (JOB # 180080)
2. THERE SHALL BE NO DISTURBANCE OF EXISTING LANDSCAPE & TREES WITHIN THE REDUCED CRITICAL AREA BUFFER AREA UNTIL START OF RESTORATION WORK.
3. PROVIDE TEMPORARY BARRIER FENCE PER BMP C103 ALONG LINE OF REDUCED BUFFER TO REMAIN IN PLACE DURING CONSTRUCTION UNTIL START OF SITE PREPARATION AND INSTALLATION OF RESTORATION PLAN.
4. PREPARE SITE PER CITY OF BELLEVUE CRITICAL AREAS HANDBOOK.
   -REMOVE NOXIOUS AND INVASIVE VEGETATION
   -TAKE CARE TO AVOID EXPOSURE OF BARE SOILS FOR EXTENDED PERIODS
   -PREPARE SOIL WITH AMENDMENTS AND/OR MULCH AS NECESSARY TO MAKE WORKABLE
5. WHEN POSSIBLE PLANTING SHOULD BE DONE BETWEEN MID-OCTOBER AND MID-MARCH.
6. PLANT HEALTHY TREES, SHRUBS AND GROUND COVERS PER NURSERY INSTRUCTIONS AND PER CRITICAL AREAS HANDBOOK INSTRUCTIONS
7. PROVIDE ADEQUATE WATER TO NEWLY INSTALLED PLANTS UNTIL ESTABLISHED; APPROXIMATELY 3 YEARS
8. MONITOR PLANTINGS FOR AT LEAST THREE YEARS TO ENSURE PLANTS ARE PROPERLY ESTABLISHED. PROPERLY WATER, HAND WEED AND MONITOR SITE. MAINTAIN A HEALTHY COVER OF MULCH. REPLACE ANY PLANTS THAT DO NOT SURVIVE.

BUFFER REDUCTION/RESTORATION PLAN

SCALE: 1/8" = 1'-0"

0 20 40

MCCULLOUGH ARCHITECTS
5700 Corson Ave South
Seattle, WA. 98108
206.443.1181
mccullougharchitects.com

Revisions Comment
2 1 July 2019 Land Use Dept. comments
Added restoration plan

Date: 25 Mar 2019
Job No: 18-011
Project No: Chen
Drawn: DRS
Approved: APM

Owner
Tony & Diana Chen

REGISTERED ARCHITECT PHILIP M. MCCULLOUGH STATE OF WASHINGTON 7806

Chen Residence

Attachment 2

9676 Hilltop Road
Bellevue, Washington 98004

Received
JUL 03 2019
Permit Processing

Permit Submittal

Buffer Reduction
Restoration Plan

A1.1

Attachment 3

MCCULLOUGH ARCHITECTS

5700 Corson Ave S. Seattle WA 98108
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To: City of Bellevue, Land Use Department

Request for Modification of Critical Area – Steep Slope Buffer
Chen Residence, 9676 Hill top Road, Bellevue, WA 98004

We are requesting a modification to the 50' buffer from the top of a steep slope located on the neighboring property to the east. Our request is in association with a building permit for the construction of a new residence on the above noted site, King Co. tax parcel APN 896480-0220.

The existing site is 21,844 Sq. Ft. or 0.50 acres in area and is currently occupied by a single-family residence, sports court and associated improvements. The existing site topography is generally flat in nature with a topographic change of approximately 5 feet up from southwest to northeast. The shape of the site is 'pie' shaped with the widest portion at the south and a long narrow point to the north.

The lot to the east (9861 Vineyard Crest) is currently occupied similarly by a single family residence, swimming pool and associated improvements. The topography of the site includes a steep slope on the west side of the property. This slope appears to have been created through past grading when the house was built several decades past. The slope is indicated to be a geologic hazard (steep slope) on the City of Bellevue online resource.

We are proposing to construct a one-story single family house with attached garage on the site. The house as designed is located on the widest portion or southern portion of the site with a small portion of the northeast corner of the house (96 Sq. Ft.) located over the existing sports court and within the buffer.

The house as designed is a one-story wood frame construction over crawlspace. Excavation for the crawlspace will be limited to 4-5 feet and should disturb no more than 250 Sq. Ft. within the buffer during construction. Temporary erosion control measures will be implemented during construction per the recommendations of the Geotechnical Engineering Study and Drainage Report prepared by D. R. Strong Consulting Engineers included with this application.

Please see attached Environmental Critical Area Assessment attached to this letter. It is also included in the Geologic Engineering study prepared by Earth Solution NW included in this submittal package.

We believe the amount of intrusion into the buffer constitutes the minimum necessary impact to the critical area. We have reviewed alternatives to intruding in the buffer. The property is located within the Vuecrest Neighborhood which has strict height and view blockage restrictions. A two-story house which would reduce the house footprint is not allowed. Shifting the house to the west or to the south could further block views from the property to the west and reduce garage access.

Thank you,

Denise Steffes, Architect

ENVIRONMENTALLY CRITICAL AREA ASSESSMENT

As part of our report preparation, we assessed the site for potential critical areas. We reviewed the City of Bellevue geologic hazard online resource, and no critical areas are described for the subject site. However, the slope located on the neighboring property to the east is inclined to a degree where we typically would pursue a slope stability analysis to provide setback recommendations for the proposed residence. Furthermore, portions of the slope on the neighboring property are indicated to be a geologic hazard by the referenced map resource. There are no planned modifications for the sloped regions around the subject site. The only modification planned is to reduce the steep slope setback (from top-of-slope) for the northeastern corner of the proposed residence.

We have analyzed the slope stability using topographic data provided to us by the client in order to determine the proposed setback from the top-of-slope is suitable from a geotechnical standpoint. The proposed setback and site configuration is described on the referenced site plan by McCollough Architects.

Based on the subsurface data collected during our site visit, and a visual reconnaissance of the site, it is our opinion that the site is stable in its current state. We base this opinion on the fact that ESNW representatives observed no signs of slope instability in the form of tension cracks, slope downsets, surface seeps, or hummocky terrain.

We have performed a slope stability analysis which is addressed later in this critical areas assessment which has demonstrated the slopes located to the east side of the site will not be subject to a net increase in instability resulting from the proposed construction. Please see attached computer model output demonstrating factors of safety that are beyond the industry standard of 1.2 for pseudo static and 1.5 for seismic. In addition, we utilized the publication Geotechnical Properties of Geologic Materials by Koloski, Schwarz, and Tubbs, provided in Volume 1 of Engineering Geology in Washington in determination of design soil strength parameters.

In our opinion, the proposed residential redevelopment, including the proposed single-family residence as shown on the referenced site plan, will not adversely affect the stability of the slopes on and around the subject site, provided our recommendations, including using Best Management Practices (BMPs) for erosion and sedimentation control, are incorporated into the design and construction.

LUC 20.25H.145 Critical areas report - Approval of modification.

Section A: Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified.

Based on our site reconnaissance, and subsurface exploration within the sloped areas under concern it is our opinion that the proposed buffer reduction and residential construction will not increase the threat of geological hazard to adjacent properties beyond the level of which currently exist.

Section B: Will not adversely impact other critical areas.

The proposed site development will not adversely impact other critical areas, based on our review of the proposed development, available information, and site exploration.

Section C: Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified.

In our opinion, through site reconnaissance, subsurface exploration, and analysis described in this report, the proposed re-development is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the buffers and critical areas were not modified. In our opinion, the proposed single-family residence construction will act in such a manner as to mitigate any slope instability. Therefore, no increase in instability to the critical slopes on and around the subject site will result from the proposed development.

Section D: Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington.

Based on our analysis of the proposed development, ESNW certifies the planned modifications to the geologic hazard critical area buffers as safe from a geotechnical standpoint.

LUC 20.25H.250 Critical areas report

B1. Identification and classification of all critical areas and critical area buffers on the site.

The client previously provided a site plan delineating and classifying the geologic critical areas, and buffers on the subject site within the northeast portion of the site. The geologic hazard areas were created through the past legal grading associated with the neighboring property to the east of the subject site, where site grades were leveled at the toe-of-slope for construction of the residence.

B2. Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site.

ESNW has reviewed the City of Bellevue critical areas on-line resource, and has determined there are no critical areas on the subject site that will be affected by the planned modifications to the slope setback. The critical areas on the site to the east of the subject property consists of a very limited steep slope area, which will not be modified as part of the proposed construction.

B3. Identification of each regulation or standard of this code proposed to be modified.

The proposed development requires the reduction of the steep slope buffers as is described on the referenced site plan and slope stability models. We have analyzed the proposed buffer reduction, and deemed that it will not increase instability characteristics of the slope under concern.

B4. An assessment of the probable cumulative impacts to the critical areas resulting from development of the site and the proposed development.

Based on our review of the proposed development, and from a geotechnical standpoint, there is no planned modification to the steep slopes on the adjacent site. Therefore there will be no cumulative impacts to the critical areas.

B5. An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal.

The current value of the critical areas (steep slope) is negligible in our opinion; as the steep slope was created through legal past grading associated with the construction of the residence on the adjacent site.

DISCUSSION AND RECOMMENDATIONS

General

In our opinion, construction of the proposed residential structure is feasible from a geotechnical standpoint. The proposed residential building can be supported on conventional continuous and spread footing foundations bearing on competent native soils, re-compacted native soils, or structural fill.

Slab-on-grade floors should be supported on competent native soil or structural fill. Competent soils suitable for support of foundations should be encountered at depths of four to five feet below existing grades in most areas. Where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soils to the specifications of structural fill, or overexcavation and replacement with a suitable structural fill material will be necessary. Recommendations for foundation design, site preparation, drainage, and other pertinent geotechnical recommendations are provided in the following sections of this study.

This study has been prepared for the exclusive use of Tony and Diana Chen and their representatives. No warranty, expressed or implied, is made. This study has been prepared in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area.

Site Preparation and Earthwork

Site preparation activities will involve removal of the existing structures, site clearing and stripping, and implementation of temporary erosion control measures. The primary geotechnical considerations associated with site preparation activities include building pad subgrade preparation, retaining wall construction, underground utility installations, and preparation of pavement subgrade areas.

Temporary construction entrances and drive lanes, consisting of at least 12 inches of quarry spalls can be considered in order to minimize off-site soil tracking and to provide a stable access entrance surface. Erosion control measures should consist of silt fencing placed along the down gradient side of the site. Soil stockpiles should be covered or otherwise protected to reduce soil erosion. Temporary sedimentation ponds or other approaches for controlling surface water runoff should be in place prior to beginning earthwork activities.

Topsoil and organic-rich (forest duff) soil was encountered at the boring locations, and was observed in thicknesses between six and 24 inches. Where encountered, topsoil and organic-rich soil is not suitable for foundation support, nor is it suitable for use as structural fill. Topsoil or organic-rich soil can be used in non-structural areas if desired. Over-stripping of the site, however, should be avoided. A representative of ESNW should observe the initial stripping operations, to provide recommendations for stripping depths based on the soil conditions exposed during stripping.

Subgrade conditions expected to be exposed throughout the proposed building and pavement areas will likely be comprised of silty sand soils. After the completion of site stripping and rough grading activities the condition of the subgrade should be evaluated by ESNW. ESNW should be retained during this phase of earthwork to observe earthwork activities. The soils exposed throughout subgrade areas should be compacted to structural fill specifications prior to constructing the foundation, slab, and pavement elements. The subgrade throughout pavement areas should be compacted as necessary and exhibit a firm and unyielding condition when subjected to the proofrolling with a loaded solo dump truck.

Structural fill soils placed throughout foundation, slab, and pavement areas should be placed over a firm base. Differential settlement can result where dense to very dense native soil conditions are encountered and transition into a fill zone. Loose or otherwise unsuitable areas of native soil exposed at subgrade elevations should be compacted to structural fill requirements or overexcavated and replaced with a suitable structural fill material. Where structural fill soils are used to construct foundation subgrade areas, the soil should be compacted to the requirements of structural fill described in the following section. Foundation subgrade areas should be protected from disturbance, construction traffic, and excessive moisture. Where instability develops below structural fill areas, use of a woven geotextile below the structural fill areas may be required. A representative of ESNW should observe structural fill placement in foundation, slab, and pavement areas.

In-situ Soils

The soils encountered at the boring locations have a moderate to high sensitivity to moisture and were generally in a moist condition at the time of the exploration (January 2019). In this respect, the in-situ soils may not be suitable for use as structural fill if the soil moisture content is more than about 3 percent above the optimum level at the time of construction. In general, soils encountered during the site excavations that are excessively over the optimum moisture content will require moisture conditioning prior to placement and compaction. Conversely, soils that are below the optimum moisture content will require moisture conditioning through the addition of water prior to use as structural fill. If the in-situ soils are determined to not be suitable for use as structural fill, then use of a suitable imported soil may be necessary. In our opinion, a contingency should be included in the project budget for exporting unsuitable soil and importing structural fill; or moisture conditioning recommendations can be provided upon request based on field observations during the construction phase of on-site work.

Imported Soils

Imported soil intended for use as structural fill should consist of a well graded granular soil with a moisture content that is at or near the optimum level. During wet weather conditions, imported soil intended for use as structural fill should consist of a well graded granular soil with a fines content of 5 percent or less defined as the percent passing the #200 sieve, based on the minus three-quarter inch fraction.

Subgrade Preparation

Following site stripping and removal of existing structures, cuts and fills will be completed to establish the proposed subgrade elevation(s) throughout the site. ESNW should observe the subgrade during initial site preparation activities to confirm soil conditions and to provide supplementary recommendations for subgrade preparation. The process of removing existing structures may produce voids where foundations and/or crawl space areas were present. Complete restoration of voids caused by the removal of existing structural improvements must be executed as part of overall subgrade and building pad preparation activities. The following guidelines for preparing building subgrade areas should be incorporated into the final design:

- Where voids and related demolition disturbances extend below planned subgrade elevations, restoration of these areas should be completed. Structural fill should be used to restore voids or unstable areas resulting from the removal of existing structural improvements.

- Recompact, or overexcavate and replace, areas of existing fill within the building footprints. ESNW should confirm subgrade conditions and the required level of recompaction, or overexcavation and replacement, during site preparation activities. Overexcavations should extend into competent native soils, and structural fill should be used to restore subgrades areas.

- ESNW should confirm the overall suitability of prepared subgrade areas following site preparation activities.

Structural Fill

Structural fill is defined as compacted soil placed in foundation, slab-on-grade, and roadway areas. Fills placed to construct permanent slopes and throughout retaining wall and utility trench backfill areas are also considered structural fill. Soils placed in structural areas should be placed in loose lifts of 12 inches or less and compacted to a relative compaction of 95 percent, based on the laboratory maximum dry density as determined by the Modified Proctor Method (ASTM D-1557). Additionally, more stringent compaction specifications may be required for utility trench backfill zones, depending on the responsible utility district or jurisdiction.

Foundations

Based on the results of our study, the proposed residential structure can be supported on conventional spread and continuous footings bearing on competent native soils, re-compacted native soils, or structural fill. Based on the soil conditions encountered at the boring sites, competent native soils suitable for support of foundations should be encountered at depths of about four to five feet below existing grades in most areas. Where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soils to the specifications of structural fill, or overexcavation and replacement with structural fill, may be necessary.

Provided foundations will be supported as described above, the following parameters can be used for design of new foundations:

- Allowable soil bearing capacity — 2,500 psf
- Passive earth pressure — 300 pcf (equivalent fluid)
- Coefficient of friction — 0.40

A one-third increase in the allowable soil bearing capacity can be assumed for short-term wind and seismic loading conditions. The above passive pressure and friction values include a factor-of-safety of 1.5. With structural loading as expected, total settlement in the range of one inch and differential settlement of about one-half inch is anticipated. The majority of the settlements should occur during construction, as dead loads are applied.

Seismic Design Considerations

The 2015 IBC recognizes the American Society of Civil Engineers (ASCE) for seismic site class definitions. In accordance with Table 20.1-1 of the ASCE Minimum Design Loads for Buildings and Other Structures manual, Site Class D should be used for design.

In our opinion the site has a low susceptibility to liquefaction, given the relative density of the glacial till soil underlying the site and the lack of a near-surface groundwater table.

Slab-On-Grade Floors

Slab-on-grade floors for the residential building constructed at this site should be supported on a firm and unyielding subgrade. Where feasible, the existing native soils exposed at the slab-on-grade subgrade level can be compacted in place to the specifications of structural fill. Unstable or yielding areas of the subgrade should be recompacted or overexcavated and replaced with suitable structural fill prior to construction of the slab. A capillary break consisting of a minimum of four inches of free draining crushed rock or gravel should be placed below the slab. The free draining material should have a fines content of 5 percent or less (percent passing the #200 sieve, based on the minus three-quarter inch fraction). In areas where slab moisture is undesirable, installation of a vapor barrier below the slab should be considered. If a vapor barrier is to be utilized it should be a material specifically designed for use as a vapor barrier and should be installed in accordance with the manufacturer's specifications.

Retaining Walls

Retaining walls must be designed to resist earth pressures and applicable surcharge loads. The following parameters can be used for retaining wall design:

• Active earth pressure (yielding condition)	35 pcf (equivalent fluid)
• At-rest earth pressure (restrained condition)	55 pcf
• Traffic surcharge for passenger vehicles (where applicable)	70 psf (rectangular distribution)
• Passive resistance	300 pcf (equivalent fluid)
• Coefficient of friction	0.40
• Seismic surcharge (active condition)	6H (where H equals retained height)

Additional surcharge loading from adjacent foundations, sloped backfill, or other loads should be included in the retaining wall design. Drainage should be provided behind retaining walls such that hydrostatic pressures do not develop. If drainage is not provided, hydrostatic pressures should be included in the wall design.

Retaining walls should be backfilled with free draining material that extends along the height of the wall, and a distance of at least 18 inches behind the wall. The upper one foot of the wall backfill can consist of a less permeable soil, if desired. A perforated drain pipe should be placed along the base of the wall, and connected to an approved discharge location. A typical retaining wall drainage detail is provided on Plate 3.

Drainage

Seepage may be encountered in deeper site excavations on the site, particularly during winter, spring, and early summer months. Temporary measures to control surface water runoff and groundwater during construction would likely involve interceptor trenches and sumps. ESNW should be consulted during preliminary grading to identify areas of seepage and to provide recommendations to reduce the potential for instability related to seepage effects.

Finish grades must slope away from the residence at an inclination of at least 2 percent for a distance of at least ten feet. In addition, surface water should be controlled utilizing best management practices (BMP) during, and after, construction on the subject site. We recommend not allowing surface water to sheet towards the sloped regions on the site. Interceptor trenches/swales can be used for such a purpose at the top-of-slope.

Footing drains should be installed as a part of the residential structures on the subject site due to the nature of the soils on the site. A typical foundation drain detail is provided as Plate 4.

Infiltration Evaluation

The subject site is underlain by glacial till deposits based on our observation of the subsurface conditions. The glacial till on the subject site consists of cemented silty sand soils (SM), which typically have a low infiltration capacity. Unweathered glacial till represents a confining layer in regards to stormwater infiltration. In our opinion the subject site maintains a low infiltration potential due to the presence of cemented dense to very dense silty sand soils. Additionally, due to the presence of the sloped regions adjacent to the subject site, we recommend an alternative to infiltration of stormwater be pursued for the project under concern, as increased subsurface water volumes may increase instability characteristics within sloped regions.

Excavations and Slopes

Based on the soil conditions observed at the boring locations, the following allowable temporary slope inclinations, as a function of horizontal to vertical (H:V) inclination, may be used. The applicable Federal Occupation Safety and Health Administration and Washington Industrial Safety and Health Act soil classifications are also provided:

- Loose soil or fill — 1.5H:1V (Type C)
- Areas containing groundwater seepage — 1.5H:1V (Type C)
- Medium dense to dense native soil — 1H:1V (Type B)
- Very dense native soil — 0.75H:1V (Type A)

Steeper temporary slope inclinations may be feasible depending on exposed soil conditions, as verified by ESNW during construction. The presence of perched groundwater may cause localized sloughing of temporary slopes. Permanent slopes should be planted with vegetation to enhance stability and to minimize erosion, and should maintain a gradient of 2H:1V or flatter. An ESNW representative should observe temporary and permanent slopes to confirm the slope inclinations are suitable for the exposed soil conditions and to provide additional excavation and slope recommendations, as necessary. If the recommended temporary slope inclinations cannot be achieved, temporary shoring may be necessary to support excavations.

Utility Support and Trench Backfill

In our opinion, the soils anticipated to be exposed in utility excavations should generally be suitable for support of utilities. Organic or highly compressible soils encountered in the trench excavations should not be used for supporting utilities. The on-site soil may not be suitable for use as trench backfill if the soil moisture content is too high at the time of compaction. Utility trench backfill should be placed and compacted to the specifications of structural fill provided in this report, or to the applicable City of Bellevue specifications. Seepage should be anticipated within utility trench excavations. Caving of the trench sidewalls due to hydrostatic pressure should be anticipated by the contractor where seepage is encountered.

LIMITATIONS

The recommendations and conclusions provided in this geotechnical engineering study are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. A warranty is not expressed or implied. Variations in the soil and groundwater conditions observed at the test locations may exist, and may not become evident until construction. ESNW should reevaluate the conclusions in this geotechnical engineering study if variations are encountered.

Additional Services

ESNW should have an opportunity to review the final design with respect to the geotechnical recommendations provided in this report. ESNW should also be retained to provide testing and consultation services during construction.